



17th International Workshop on Laser
Ranging
Bad Koetzting, 16-20.05.2011



**The estimation of the SLR data by analysis centers
and possibility of closely cooperation between
stations and analyst**

Stanisław Schillak

Space Research Centre, Polish Academy of Sciences
Astrogeodynamic Observatory, Borowiec

e-mail: sch@cbk.poznan.pl

SLR Station Accuracy – analysts parameters

Long term bias stability

Short term bias stability

RMS of fit/station

NP residuals per one arc – graphic representation

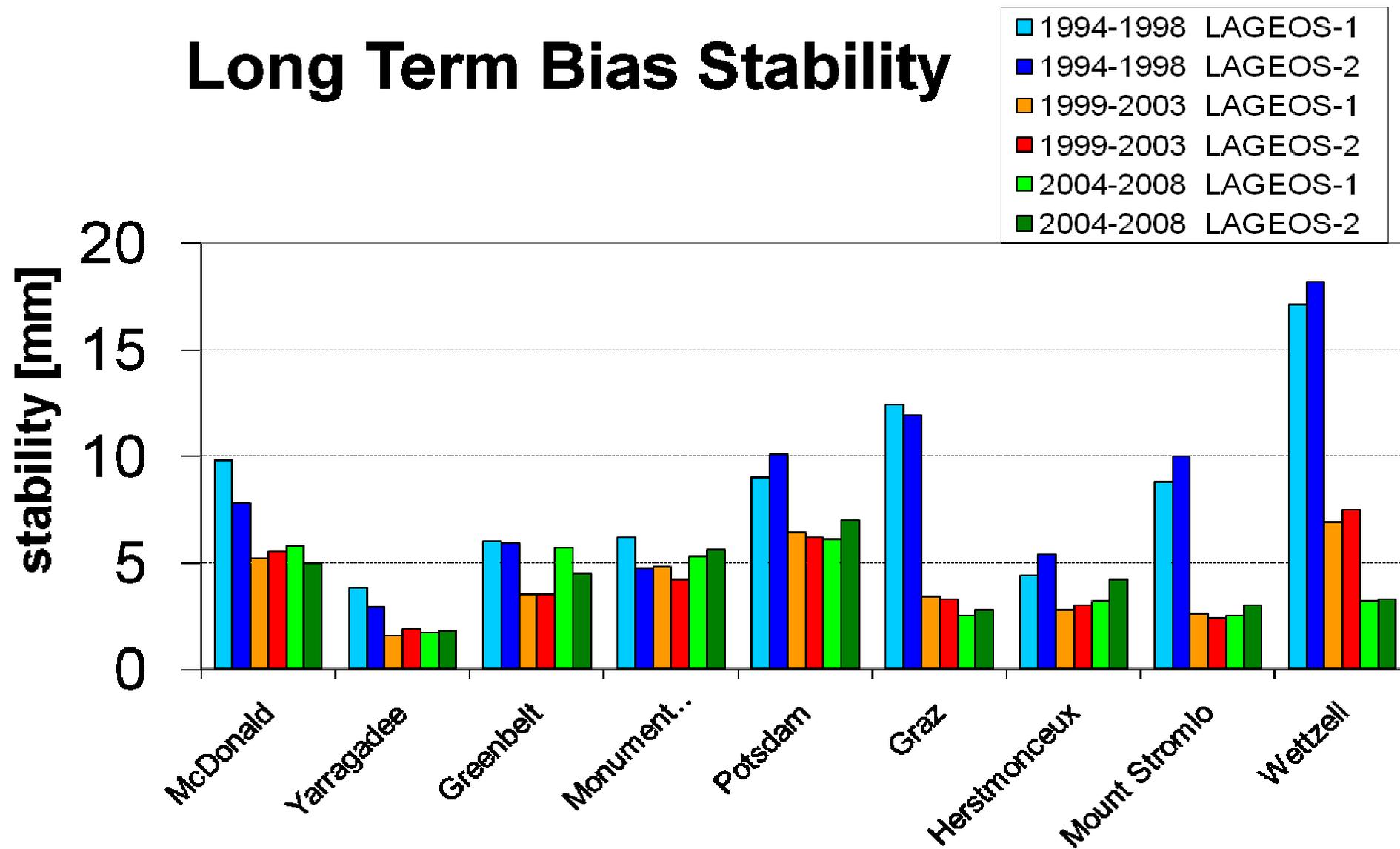
Station position stability (3D) => 1 mm

N, E, U graphic representation (GPS included?)

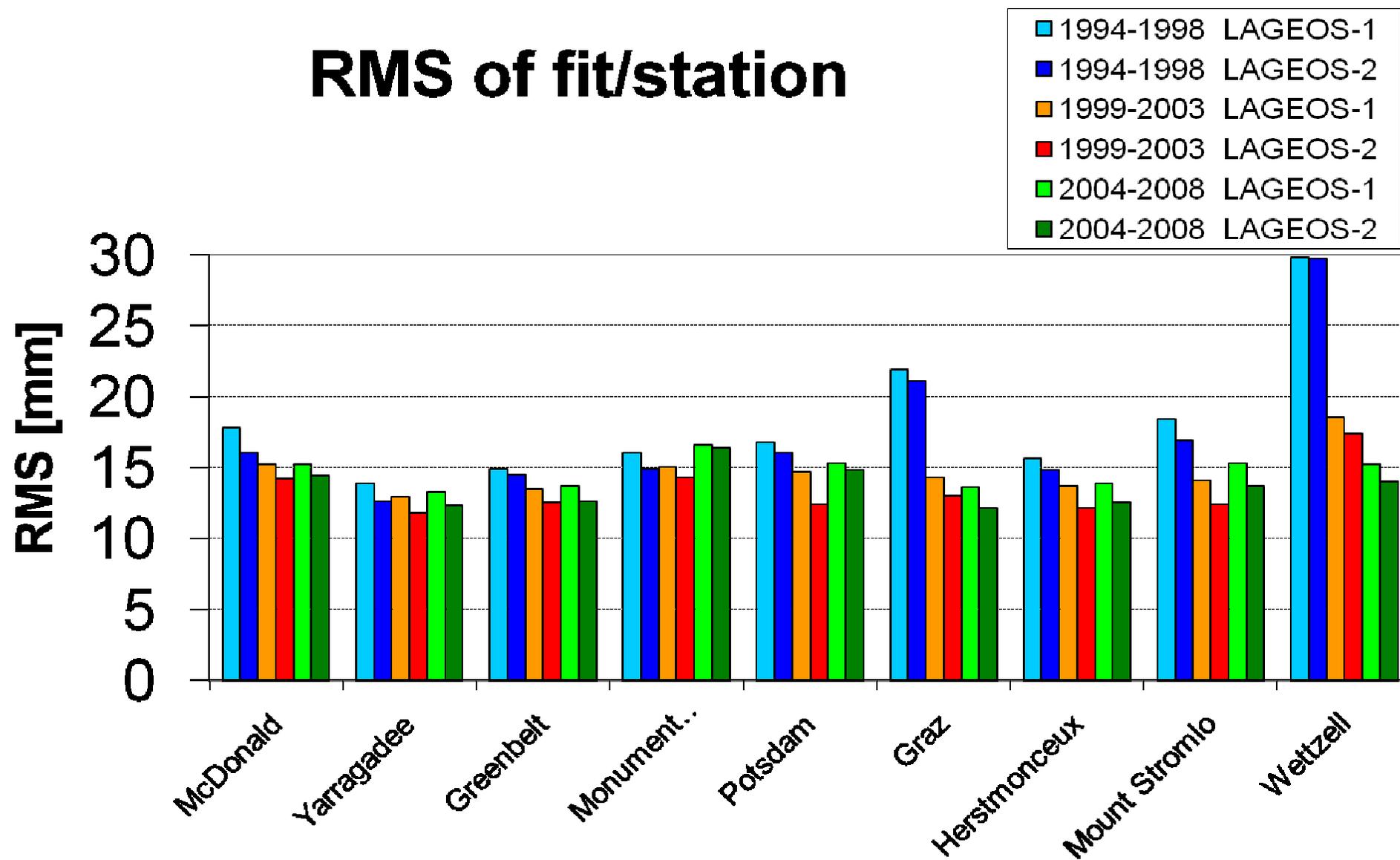
STATIONS 1994 - 2008

		First – Last	Points
McDonald	7080	94-01 – 08-12	179
Yarragadee	7090	94-01 – 08-12	178
Greenbelt	7105	94-01 – 08-12	170
Monument Peak	7110	94-01 – 08-12	175
Graz	7839	94-01 – 08-12	179
Herstmonceux	7840	94-01 – 08-12	179
Wetzell	8834	94-01 – 08-12	171
Potsdam	7836–7841	94-01 – 08-12	172
Orroral-Mt.Stromlo	7843-7849-7825	94-01 – 08-12	154

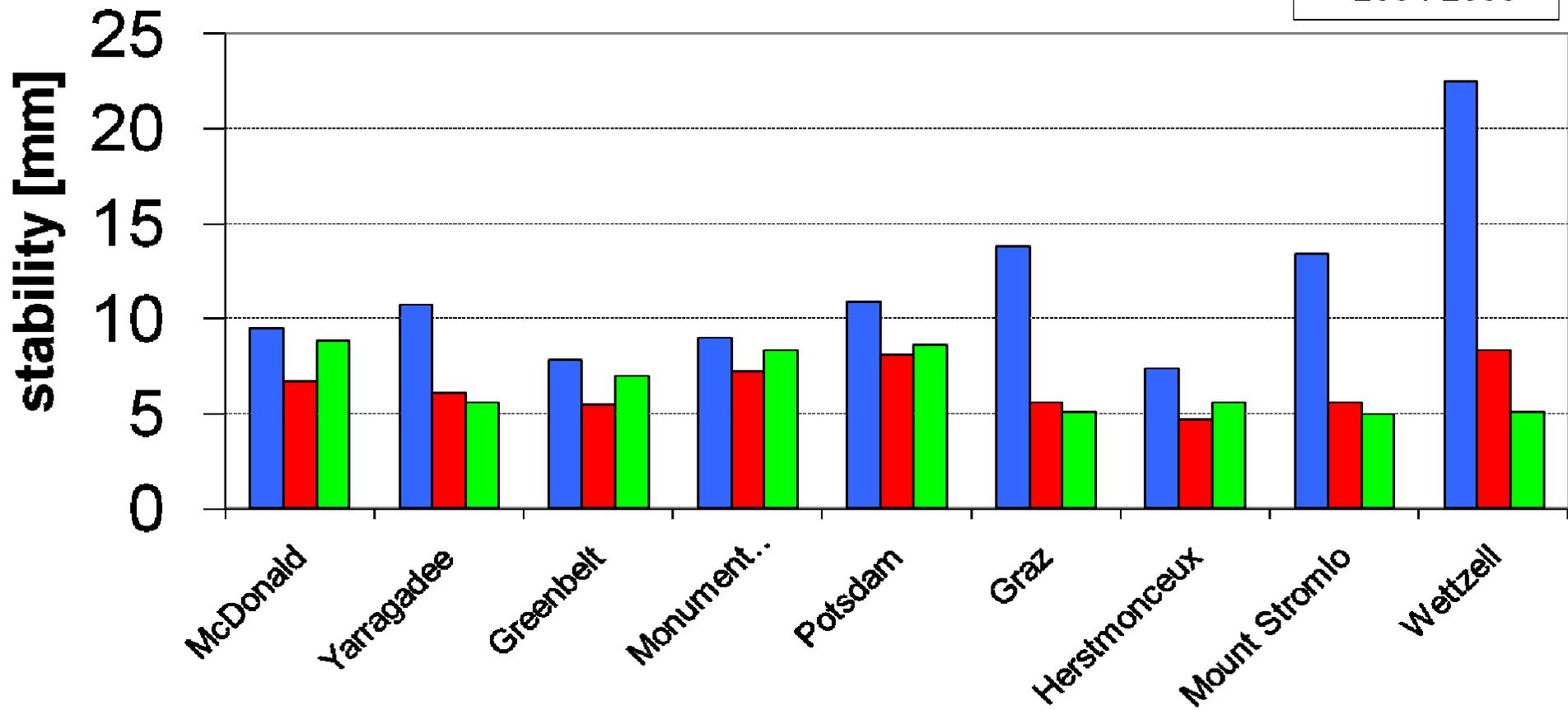
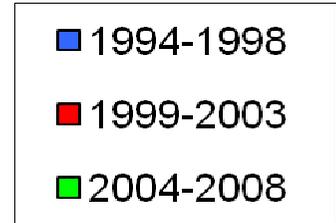
Long Term Bias Stability



RMS of fit/station

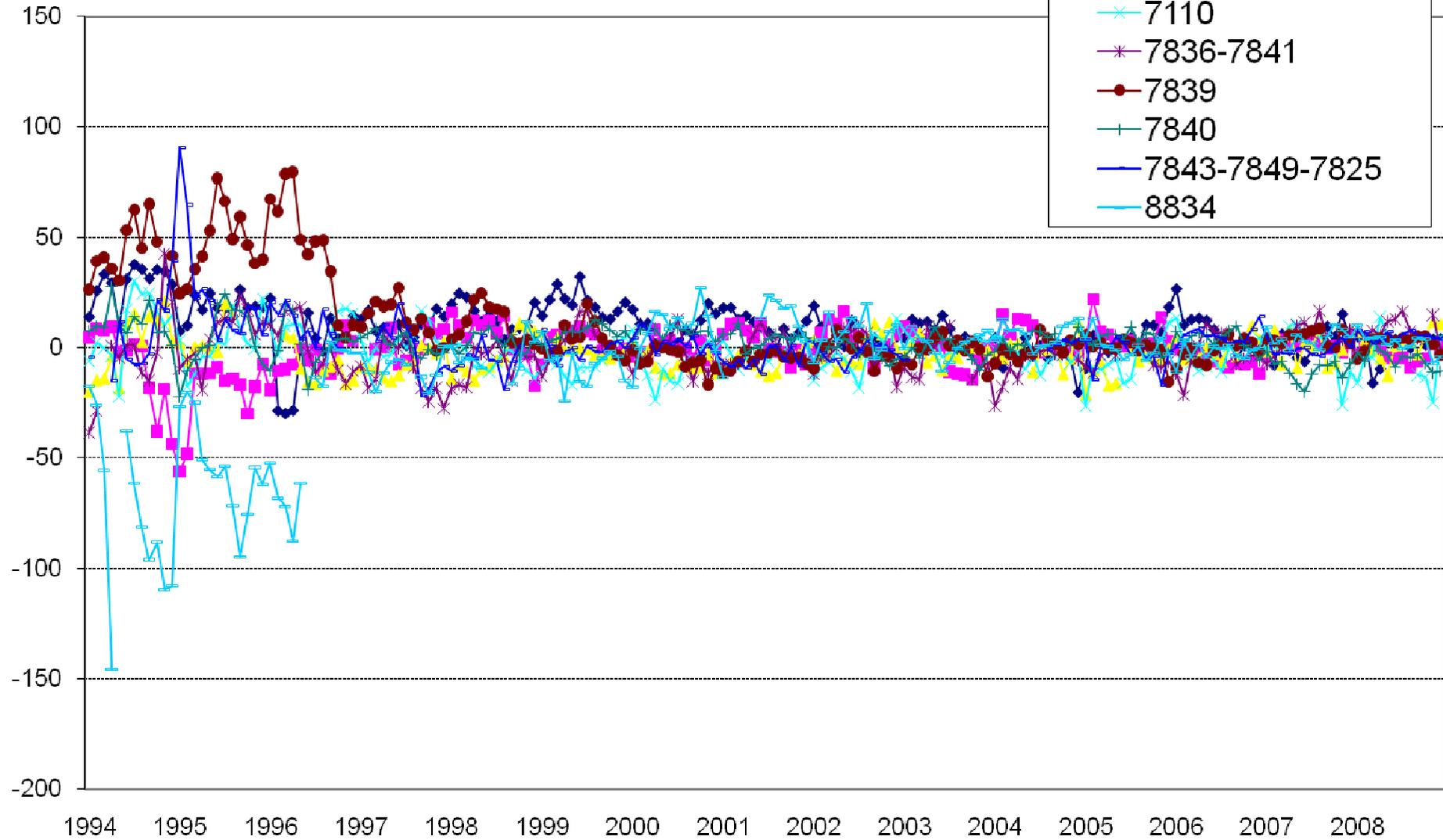


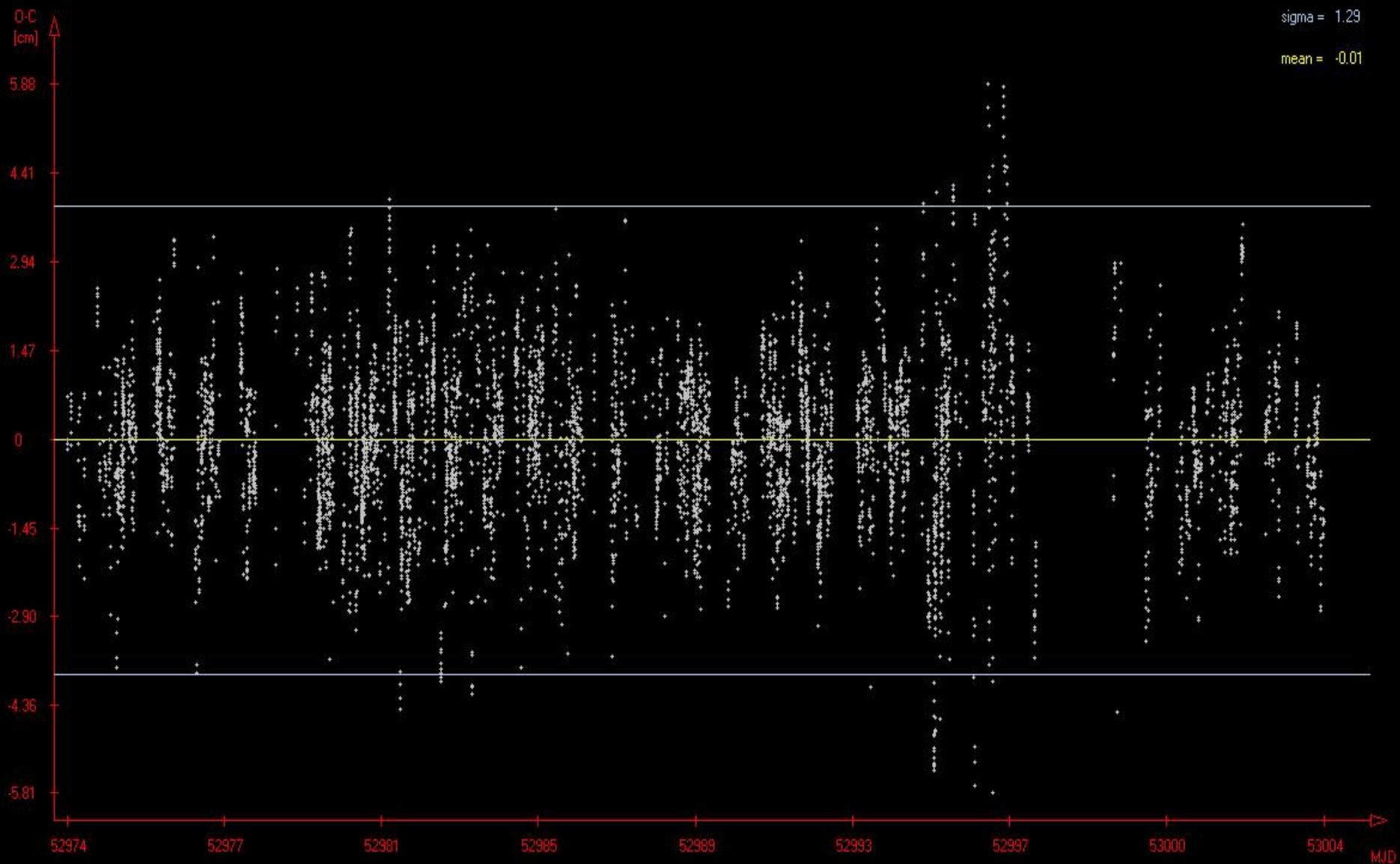
Station Position Stability

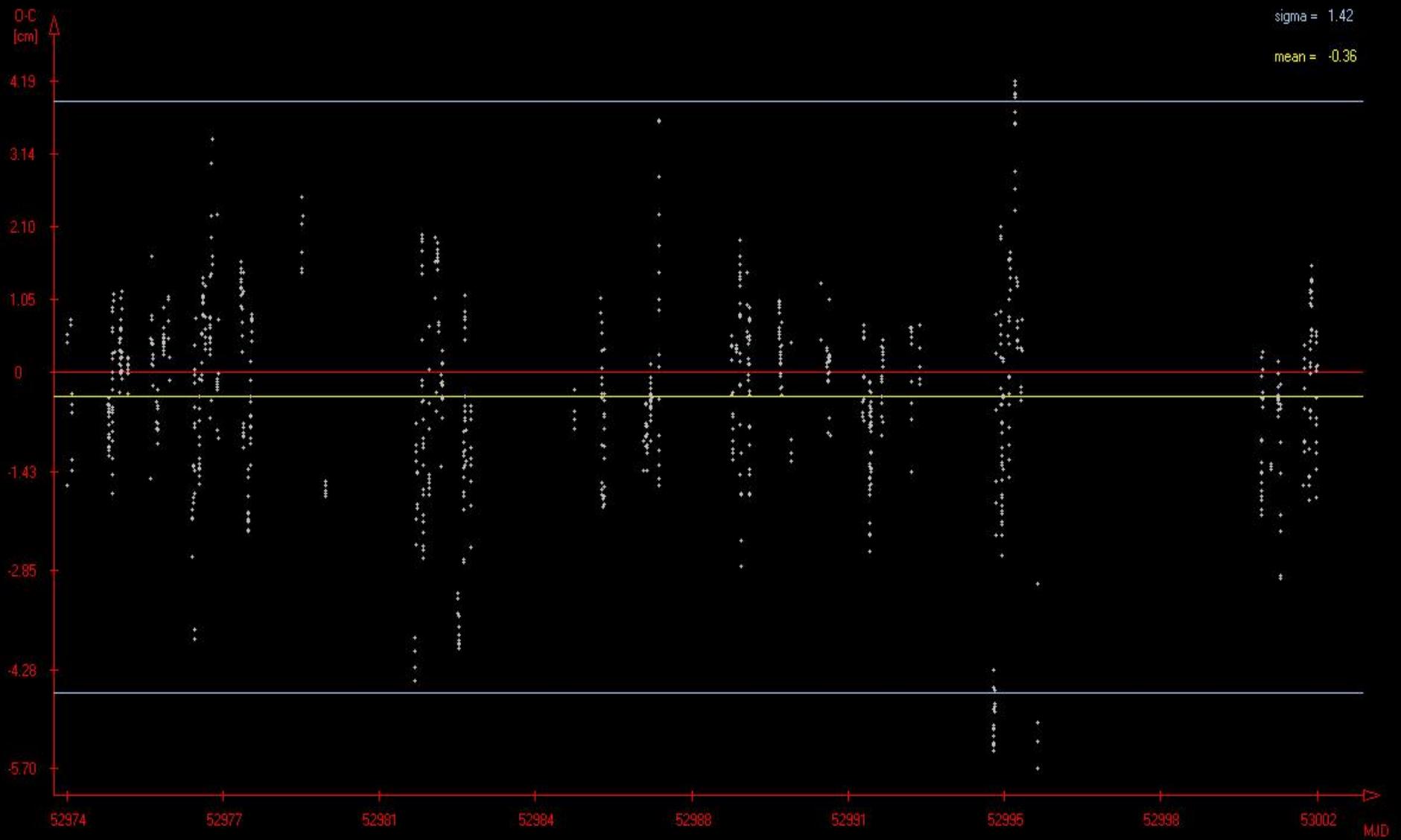


Vertical Component 1994 - 2008

U [mm]





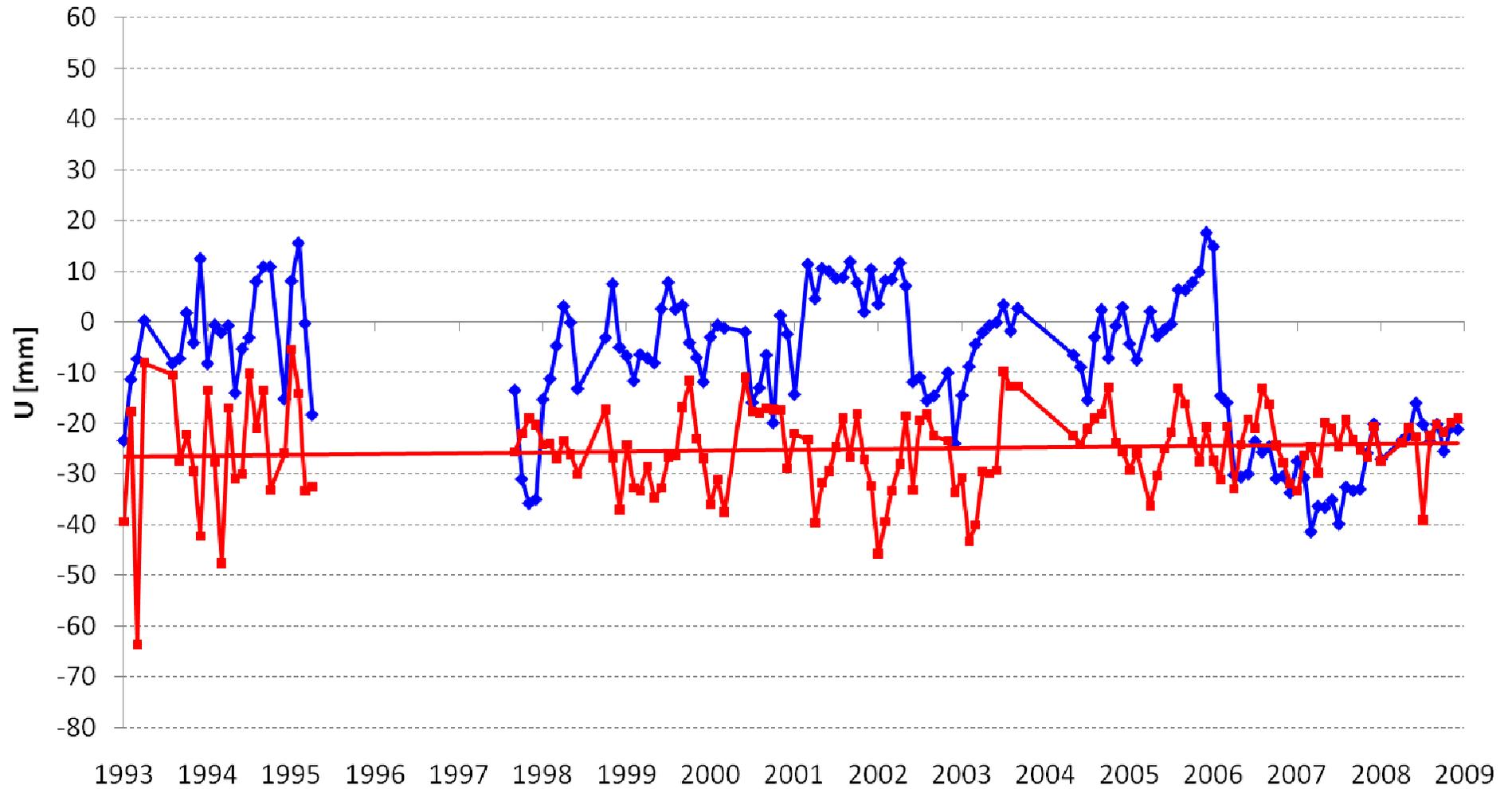


Zimmerwald 7810-ZIMM

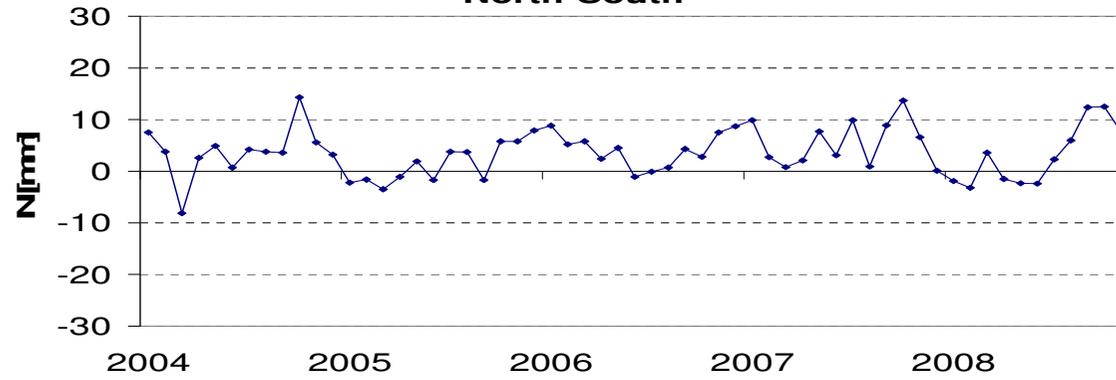
Up

7810

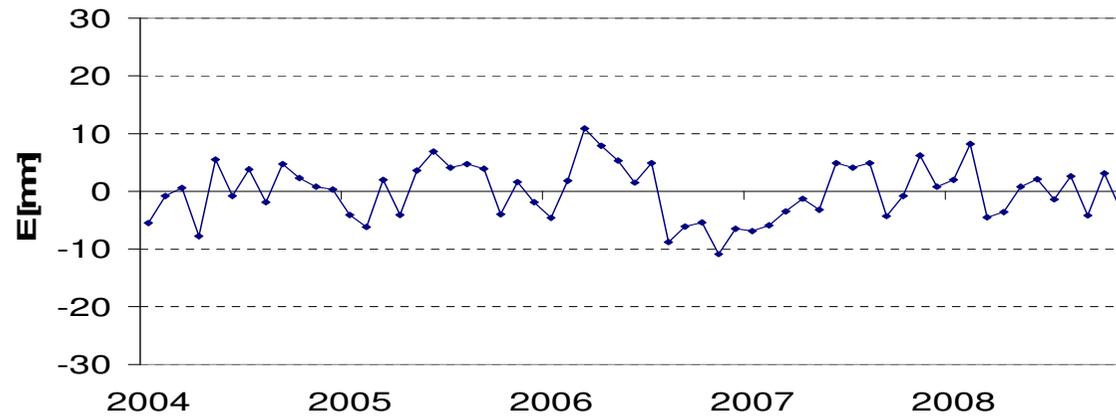
ZIMM



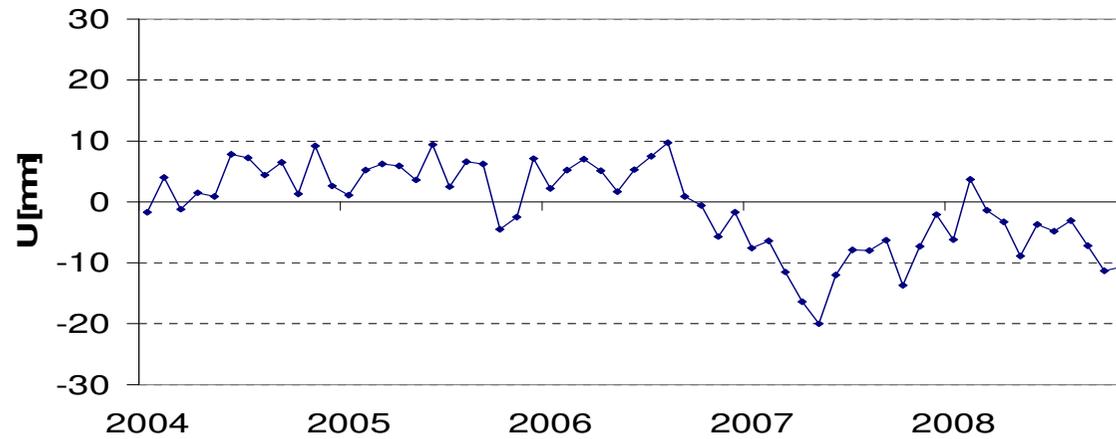
Herstmonceux - 7840 North-South



East-West



Up



QUESTIONS

Where we are, how far to 1 mm?

What is the best parameter for estimation of the station accuracy?

What is the best information from analysts to stations?

Why from more than 10 years we haven't any improvement in the stations accuracy? What we can do?

**Why several the best stations have the worst accuracy than several years earlier?
Is it really true?**

**What we can do for accuracy improvement of the best stations?
What limits are from observations side and computations side?**

ACKNOWLEDGEMENTS

The author wishes to thank

NASA GSFC for consent to use GEODYN-II program

**ILRS stations for their continuous efforts to provide
high-quality SLR data**

**Borowiec SLR team: [Piotr Michałek](#), [Danuta Schillak](#) and
[Stanisław Zapaśnik](#) for their help in data analysis**

**This work has been supported by financial resources for
science in 2010-2013 as a research project No. N N526 231839**